REMARKS

Claims 1 - 4 and 6 - 16 remain active in this application. Claim 5 has previously been canceled. Claims 1, 3, 6, 11 and 16 has been amended to improve clarity and accuracy and to recite additional distinguishing features of the invention. Previous amendatory matter has been revised on page 6. Support for the amendments of the claims is found throughout the application, particularly on page 6 and in Figures 1 and 12 - 14 and the description thereof on pages 19 - 23 of the specification as originally filed. No new matter has been introduced into the application.

Before proceeding to a discussion of the grounds of objection and rejection contained in the current office action, it is respectfully pointed out that the current office action is incomplete since the Examiner has failed to indicate any disposition in regard to claims 13 - 15. Therefore, it is also respectfully pointed out that the next office action, if adverse in any respect, cannot properly be made final.

Claims 1 and 16 have been rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement; the Examiner asserting a contradiction between these claims. Claims 1 and 16 have also been rejected under 35 U.S.C. §112, second paragraph, as failing to particularly point out and distinctly claim the subject matter regarded as the invention based on the same asserted contradiction. Both of these grounds of rejection are respectfully traversed, particularly as being moot in view of the amendments made to claim 16, above.

In stating these grounds of rejection, the Examiner appears to have taken the reference (in the singular) to

"a dependency" in claim 16 and construed the recitation to indicate that *all* stored instructions have the same, *identical*, dependency and then inferred that, if such were the case, the invention would not be capable of issuing instructions out of order as recited in claim 1 and contrary to Applicant's intent, particularly in regard to claim 16. It is respectfully submitted that such a construction, even if justified, does not warrant inclusion of claim 1 within these grounds of rejection since the subject matter of claim 1 is clearly supported by enabling disclosure as evidenced, *inter alia*, by the fact that the Examiner makes no criticism of the subject matter of claim 1. Further, it is often the case that dependent claims are often drawn to special cases of the subject matter of the independent claim and, in this regard, it is respectfully submitted that the subject matter of claim 1 is not contradicted by claim 16 and the subject matter is not inoperative to issue out of order instructions but would merely not have occasion to do so under the circumstances of the Examiner's unrealistic construction of the conditions of claim 16. It is also respectfully pointed out in this regard that the Examiner's construction is particularly unrealistic and unwarranted since no instruction could issue at all if all instructions had the same, identical dependency for the simple reason that no instruction with an uncanceled dependency can be issued and thus there is no other instruction available to be issued such that the dependency could be canceled although, if all the identical dependencies were to somehow be canceled, instructions would, indeed, issue in storage order. Further, the recitation of detection of a dependency of *any* instruction on another instruction is contrary to the construction asserted by the Examiner. Again, it is

respectfully pointed out, issuance of instructions in strict storage order under the special circumstances of having no dependencies or where all dependencies have been canceled does not contradict and is within the scope of claim 1 since claim 1 recites subject matter supporting the function of issuing instructions out of order when uncanceled dependencies are present for instructions which precede instructions for which there are no dependencies at all or instructions with canceled dependencies.

In any case, the language which the Examiner has misconstrued has been changed to "respective dependencies" which clearly precludes the construction the Examiner has made and which is the only arguable basis for these grounds of rejection. Additionally, the detection of a dependency is now properly attributed to a reorder buffer, as explicitly disclosed on page 6, and the conditions for satisfaction and cancellation of a dependency are now more fully set out; both of which further preclude the Examiner's asserted construction. Accordingly, it is respectfully submitted that both of these asserted grounds of rejection are moot in view of the above amendments to claim 16 and thus even more untenable than they are in regard to the claims as currently rejected. Therefore, it is respectfully requested that these grounds of rejection be reconsidered and withdrawn.

Claims 1 - 2, 6 - 12 and 16 have been rejected under 35 U.S.C. §102 as being anticipated by Hunt and claims 3 - 4 and 16 have been rejected under 35 U.S.C. §103 as being unpatentable over Hunt; the Examiner taking official notice that features recited in these claims are considered to be conventional. These grounds of rejection are also respectfully traversed, particularly

as being moot in view of amendments made above to at least claims 1, 6 and 11.

Hunt is principally directed to the prevention of premature signaling of exceptions which are disclosed therein to be principally or "typically" a "condition which causes a stall or bubble in the pipeline sequence and which may force the CPU to change the flow of program execution" (column 2, lines 63 - 66) whereas the present invention is directed to enhancing the speed with which a dependency may be canceled and thus to reduce the latency of instructions having dependencies and reducing the required capacity of instruction queues and the reorder buffer by the simple expedient of providing for cancellation of dependencies each instruction cycle and performing queue control for issuing instructions which are earliest registered in instruction buffers and which have no uncanceled dependencies (which, it should be noted, is distinct from the substantially random and uncontrollable (see page 14, lines 17 - 22) order of issuance of instructions when buffer queue control is not used as discussed in connection with Figures 8A - 8C and 9 - 11 of the present specification). The Examiner relies on the disclosed preferred embodiment of Figure 4, as described at column 7, line 25 to column 8, line 35. However, it is noted that the particular features of the preferred embodiment of Hunt do not appear to enhance or even be relevant to the principal function of Hunt.

While Hunt, in the preferred embodiment disclosed, sorts instructions into memory access operations and ALU operations and removes instructions from the instruction buffer in program order, hunt explicitly states that "any workable scheme" may be used to arbitrate the launching of instructions and instructions can be reordered or not, as desired (see column 7, lines 34 - 42) and does not

disclose any particular "workable scheme" other than issuing instructions *in order and without consideration of dependencies*. Therefore, Hunt does not, in fact, disclose or suggest the particular scheme for out of order issuance of instructions recited in the claims as currently rejected or indicate any criticality or even any advantage to be obtained from the particular out of order ordering of the issuance of instructions.

In this regard, it is noted that the Examiner has taken the position that consideration of dependencies is inherent in Hunt based upon the same passage of column 7, lines 34 - 42, noted above. However, it is respectfully pointed out that mere consideration of dependencies, even if properly considered to be inherent, does not answer the *particular* ordering of issuance of program instructions different from program order claimed and asserting that it does is contrary to the explicit disclosure of Hunt indicating that "*any* workable scheme" can be used. Further, that explicit disclosure of Hunt and the following sentence at lines 42 - 46 (indicating that a FIFO instruction issuing scheme "where instruction reordering is not performed" is assumed for "ease of illustration") essentially precludes such disclosure from having any evidentiary value for purposes of demonstrating either anticipation of a level of ordinary skill which would support a conclusion of obviousness in regard to any *particular* out of order instruction issuance scheme. Moreover, reliance on inherency is only proper where the subject matter asserted to be inherent *necessarily and unavoidably flows* from the subject matter actually disclosed in the reference, whereas in the present case, all that is, in fact, disclosed is a FIFO scheme where instruction reordering is not performed. The Examiner's assertion that reliance on inherency is

proper where the disclosure merely "encompasses" the subject matter asserted to be inherent is respectfully submitted to be incorrect. Therefore, it is respectfully submitted that the Examiner's reliance on inherency is not only improper but, even if proper, the subject matter asserted to be inherent would still fail to meet the explicit recitations of the claims. Therefore, grounds of rejection based on Hunt are clearly in error and untenable and, upon reconsideration, should be withdrawn and such action is respectfully requested.

It is also noted in this regard, that the Examiner has included a reference to a publication by Hennessy which is not of competent date in view of the filing date of the present application, notwithstanding the Examiner's assertion that the same disclosure appears in an earlier edition which is of competent date. Further, the Examiner does not even assert that the particular instruction issuance scheme explicitly recited in the claims is disclosed therein (and no disclosure of the claimed scheme is seen therein) but only the "concept" of dynamic scheduling in general, as repeatedly observed by the Examiner. Such a position taken by the Examiner falls far short of making a *prima facie* demonstration of anticipation or obviousness of the claimed subject matter and certainly does not provide a sound evidentiary basis for supporting either asserted ground of rejection. Further, it is respectfully submitted that the Examiner is mistaken in asserting that reliance on a secondary reference as extrinsic evidence is proper for supporting a rejection for anticipation under the circumstances presented here (e.g. whether or not a *particular* instruction issuing scheme was known or used by others prior to the present invention). The MPEP section cited by the Examiner indicates that extrinsic evidence can be

used to show that a *characteristic* of disclosed subject matter is inherent but not to show that a particular scheme (e.g. having a particular functionality) was known or used prior to invention by Applicant, particularly where the reference relied on, by explicitly disclosing that "*any*" scheme can be used, implies the existence of plural suitable schemes; of which, none are necessarily the *particular scheme* claimed. In short, it appears that if the *particular* instruction issuing scheme claimed had been disclosed by Hennessy (although no such disclosure beyond out of order instruction issuance, in general, is seen), the Examiner would have (and should have) included Hennessy as a secondary reference in a rejection under 35 U.S.C. §103 rather than relying on an improper and illogical assertion of inherency of a *particular* instruction issuing scheme is *explicitly contradicted* by Hunt in the reference to "any workable scheme" being usable. In other words, if more than one scheme is known and usable in Hunt, as Hunt explicitly asserts, logically, no *particular* scheme can be "inherent" as *necessarily* flowing from the subject matter which is, in fact, disclosed because of the disclosure that various alternatives, in fact, exist. Further, none of the alternatives which might exist are necessarily that which is explicitly claimed while absence of disclosure of the *particular* scheme claimed in Hennessy must be assumed from the improper reliance by the Examiner on an assertion of inherency (which is, on the contrary, tantamount to an admission by the Examiner that Hunt does *not* explicitly disclose the instruction issuing scheme claimed) as well as the lack of any assertion by the Examiner that the particular claimed scheme is disclosed therein and the Examiner's repeated reference to disclosure of a "concept" of dynamic scheduling.

Moreover, in this regard, it is respectfully submitted that the Examiner has effectively ignored the explicitly recited conditions of instruction issuance (e.g. that the instruction issued is the earliest registered instruction have no uncanceled dependencies) and may have done so based on the above-discussed grounds of rejection under 35 U.S.C. §112, first and second paragraphs. It is respectfully submitted that butressing one rejection with another is, itself, improper, and is even more clearly improper where none of the grounds of rejections is, *per se*, proper, as is respectfully submitted to be the case here. Therefore, it is respectfully requested that the grounds of rejection based in Hunt (and Hennessy) be reconsidered and withdrawn.

Additionally, while the grounds of rejection of record are respectfully submitted to be clearly improper, in order to expedite the prosecution of the application and more fully and clearly define the subject matter of the invention, independent claims 1, 6 and 11 have been further amended to recite the expeditious canceling of dependencies which supports the meritorious effects of the invention of providing earlier issuance of instructions originally having dependencies, faster completion of execution of a program through a pipeline and reduction of latency of instructions in an instruction buffer to allow more efficient use of a reorder buffer and/or reduction of the required capacity thereof. Further, claim 1 has been amended to recite concurrent issuance/execution of instructions from respective buffers (already recited in claim 6 and which the Examiner has not addressed). Neither of these features is addressed in any way by Hunt (or Hennessy) and the claims are respectfully submitted to be

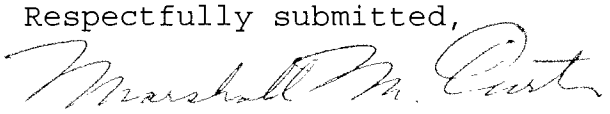
patentably distinguished from the prior art relied upon by reason of those recitations, as well.

Finally, the Examiner has objected to terminology on page 6 as being new matter. This objection is respectfully traversed as moot in view of the amendments made above. The Examiner is correct in perceiving the previous amendatory matter to be a typographical error which has been corrected.

Since all rejections, objections and requirements contained in the outstanding official action have been fully answered and shown to be in error and/or inapplicable to the present claims, it is respectfully submitted that reconsideration is now in order under the provisions of 37 C.F.R. §1.111(b) and such reconsideration is respectfully requested. Upon reconsideration, it is also respectfully submitted that this application is in condition for allowance and such action is therefore respectfully requested.

If an extension of time is required for this response to be considered as being timely filed, a conditional petition is hereby made for such extension of time. Please charge any deficiencies in fees and credit any overpayment of fees to Attorney's Deposit Account No. 50-2041.

Respectfully submitted,



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